

REMARKS

In response to the Office Action mailed May 4, 2005, the Applicant respectfully requests reconsideration. The amendments above, and remarks that follow, address points raised in the Office Action, and, thereby, place this application in condition for allowance.

Claims 1-6, 8-14, 17-30, 33-36, 38-42, 44-52, 54-61, and 64-66 were pending in this Application. By this Amendment, claims 12, 21, 30, 42, and 59 have been canceled and claims 1, 10, 13, 17, 19, 20, 22, 24, 27, 29, 35, 38, 41, 44, 47, 57, and 64 have been amended. Accordingly, claims 1-6, 8-11, 13-14, 17-20, 22-29, 33-36, 38-41, 44-52, 54-58, 60-61, and 64-66 are now pending in this Application. Claims 1, 10, 19, 27, 35, 41, 47, 57 are independent claims and the remaining claims are dependent claims. No new matter has been added by the proposed amendments.

Drawings:

The informal amendment to the drawings were approved by the Examiner. While a replacement sheet incorporating the changes was transmitted to the Patent Office in the Office Action response dated November 22, 2004, a copy of the corrected drawing, Figures 3A and 3B, in compliance with 37 CFR 1.121(d) is hereby submitted. A Notice to the Official Draftsperson is also being submitted concurrent with this Amendment.

Claim Objections:

The Examiner has objected to several claims as being in improper form. With respect to multiple dependent claims 17, 29, and 64, the claims have been amended such that the claims refer to other claims in the alternative only. The amendments merely clarify the nature of the invention and do not add new matter to the application.

With respect to claims 1, 10, 19, 27, 35, 41, 47, and 57, the Examiner indicates the end quotation for "first process" is missing. Claims 1, 10, 19, and 27 have been amended such that the end quote at the end of the phrase "first process" is now present. These amendments clarify

the nature of the invention and do not add new matter to the application. Claims 35, 41, 47, and 57, however, have not been amended because the claims already include the end quotation to the phrase “first process”, as indicated in the Office Action response dated November 22, 2004. The Applicant respectfully requests clarification as to the objection to claims 35, 41, 47, and 57.

Claim Rejections Under 35 U.S.C. §112:

Claims 1-6, 8-14, 17-30, 33-36, 38-42, 44-52, 54-61, and 64-66 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter that the applicant regards as the invention.

In particular, the Examiner recites the claim language in claims 1, 10, 19, 20, and 36 as being indefinite. Claim 36, however, is a dependent claim. We believe that claim 3, as recited in this portion of the Office Action, should actually be recited as claim 35.

The Examiner indicates that in claims 1, 10, 19, 20, and 35 there is no relationship or connection between “second process” and second process (without quotes). We respectfully disagree with this contention. The “second process” and second process (without quotes) refer to the same concept (e.g., executing a second sequence of instructions in any of a second computer process and second computer thread). The Applicant respectfully requests that the Examiner clarify how the use of the phrase “second process” and the phrase second process (without quotes) is inconsistent within the claims.

The Examiner indicates that in claims 1, 10, 19, 20, and 35, the term “favorable” is indefinite. To clarify the nature of the invention, claims 1, 10, 19, 20, and 35, as well as claims 41, 47, and 57, have been amended such that a favorable comparison “indicates the first process and the second process executed their respective instruction sequences substantially identically.” Support for these amendments can be found on page 3, lines 12-23, for example.

Claim Rejections Under 35 U.S.C. §103:

Claims 1-6, 8-14, 17-30, 33-36, 38-42, 44-52, 54-61, and 64-66 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,499,048 to Williams. The Examiner, however, has not established a *prima facie* case of obviousness with respect to the

claims. For the reasons below, the claims are patentable over Williams because Williams does not teach or suggest all of the claim limitations in the independent claims.

Taking the Applicant's claim 1 as an example, the claim recites a method of operation of a control system, comprising executing a first sequence of instructions in any of a first computer process and first computer thread, collectively a "first process", and executing a second sequence of instructions in any of a second computer process and second computer thread, collectively a "second process", with the second process being loosely coupled with respect to the first process. The method also comprises, in the first process, receiving a state of the second process and, following execution of the first instruction sequence, comparing a state of the first process with the state of the second process. and, in the second process, receiving a state of the first process and, following execution of the second instruction sequence, comparing a state of the second process with the state of the first process. The method comprises responding to failure of the first and second processes to achieve comparable states by rolling back each of the first and second processes to prior states in which a favorable comparison indicating the first process and the second process executed their respective instruction sequences substantially identically was achieved. Each of the first and second processes execute on any of a process control field device, a block controller, a process controller, a process control plant server, a process control enterprise server, an industrial control device, an industrial control system, an environmental control device, an environmental control system, other control device, and other control system.

Williams, by contrast, relates to a program controlled apparatus that is capable of executing multiple processes. Williams describes a multiprocessor computer system 10 having a plurality of processing sets 12, 14, 16 and an input/output (I/O) monitor unit 18. In the asynchronous system of Williams, the monitor unit 18 observes the I/O outputs from the processing sets 12, 14, 16 and acts to synchronize the operation of the processing sets 12, 14, 16 based upon I/O operations received from the processing sets 12, 14, 16. Each processing set 12, 14, 16 provides a progress indication to the monitor that allows the monitor to determine how far processing for each set has proceeded. Based upon the progress indication, the controller slows a processor so that it does not become too far out of step with the others.

In Williams, to control a degree of synchronization of the processing sets, the controller selectively stalls certain processors of the processing sets to allow the other processors to catch up with the stalled processor. Williams does not teach or suggest a first process, “receiving a state of the second process and, following execution of the first instruction sequence, comparing a state of the first process with the state of the second process” and in a second process, “receiving a state of the first process and, following execution of the second instruction sequence, comparing a state of the second process with the state of the first process”, as claimed by the Applicant. In Williams, the processors require an external hardware controller to determine and control the speed of each processor, thereby synchronizing the operation of the processing sets. Therefore, each processor in the processing set operates and becomes synchronized without knowledge of the state or operation of the other processors in the processing set, contrary to the recitation in the Applicant’s independent claims. As such, because Williams does not teach or suggest all of the claim limitations in the independent claims, the Examiner has not established a *prima facie* case of obviousness with respect to independent claims 1, 10, 19, 27, 35, 41, 47, and 57. Independent claims 1, 10, 19, 27, 35, 41, 47, 57, therefore, are patentable over Williams for at least the above reasons and should be allowed to issue.

Further, claims 2-6, 8, and 9, which depend from claim 1, claims 11, 13-14, 17-18, which depend from claim 10, claims 20 and 22-26, which depend from claim 19, claims 28-29 and 33-34, which depend from claim 27, claims 36 and 38-40, which depend from claim 35, claims 44-46, which depend from claim 41, claims 48-52 and 54-56, which depend from claim 47, and claims 58, 60-61, and 64-66, which depend from claim 57 are also allowable for the same, and other, reasons.

Conclusion

In view of the above, the Applicant respectfully submits that the claimed invention is patentable. The Applicant therefore kindly requests consideration of all claims in light of the above remarks and allowance thereof.


The Applicant hereby petitions for any extension of time which is required to maintain the pendency of this case. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 141449.

The Examiner is also kindly requested to contact the undersigned if such would expedite examination and allowance of the application.

Respectfully submitted,

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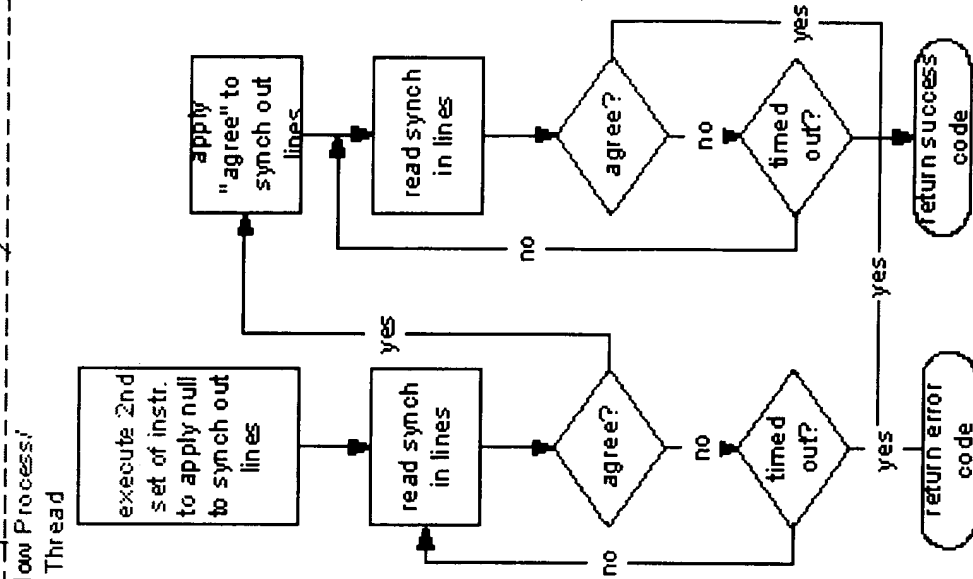


Fig. 3B

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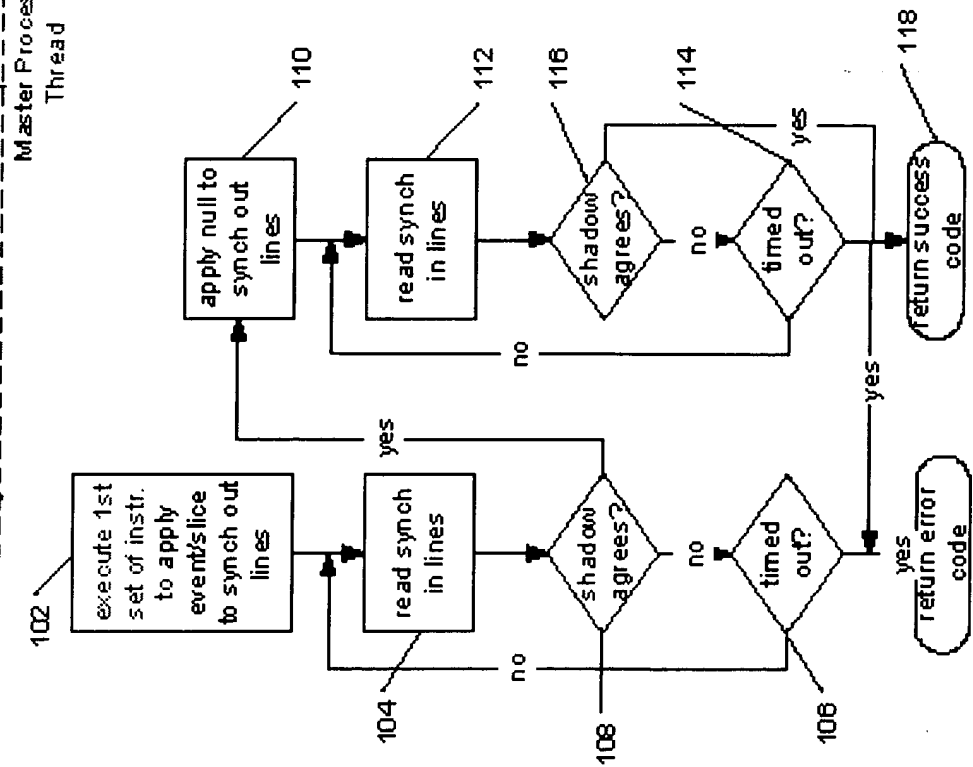


Fig. 3A